



Quick Reads From NSF.gov

October 2, 2018

01

NSF announces new measures to protect research community from harassment

NSF has taken the next steps in its agency-wide effort to ensure the research and learning environments it supports are free from harassment, publishing a term and condition that requires awardee organizations to report findings and determinations of sexual harassment, as well as establishing a secure online portal for submitting harassment notifications. On Sept. 21, 2018, NSF published a term and condition for awards, to become effective 30 days after publication, that will require awardee organizations to notify the agency of (1) any findings or determinations that an NSF-funded principal investigator or co-principal investigator committed harassment, including sexual harassment or sexual assault; and (2) the placement of the principal investigator or co-principal investigator on administrative leave, or of the imposition of any administrative action relating to a harassment or sexual assault finding or investigation. Find out more in this NSF [News Release](#).

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02

New NSF funding to build research infrastructure across the country

NSF has awarded nearly \$140 million to seven jurisdictions through the Established Program to Stimulate Competitive Research (EPSCoR), which builds research and development capacity in jurisdictions that demonstrate a commitment to research but have thus far lacked the levels of investment seen in other parts of the country. The new EPSCoR Research Infrastructure Improvement (RII) Track-1 awards will bolster science and engineering research infrastructure in Alaska, Delaware, Idaho, Mississippi, Montana, New Hampshire and New Mexico, each of which will receive five years of support. EPSCoR is a program designed to fulfill the foundation's mandate to promote scientific progress nationwide. The program enhances research competitiveness of targeted jurisdictions by strengthening their capacity for education, workforce training and innovation in science, technology, engineering and mathematics. EPSCoR works with jurisdictions to identify and support projects with the greatest likelihood of success in those areas. Find out more in this NSF [News Release](#).

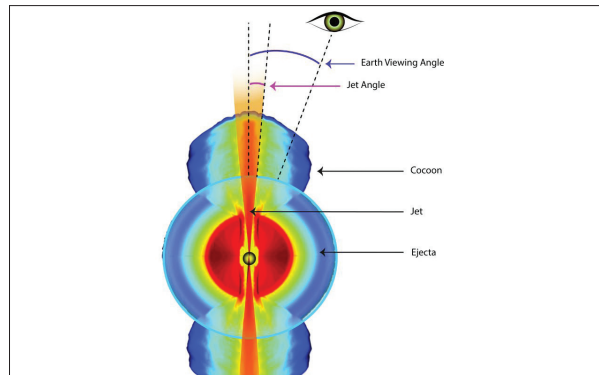
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03

Radio observations confirm superfast jet of material from neutron star merger

Precise measurement using a continent-wide collection of NSF radio telescopes -- both orbiting and ground-based -- has revealed that a narrow jet of particles moving at nearly the speed of light broke out into interstellar space after a pair of neutron stars merged in a galaxy 130 million light-years from Earth. The merger, which took place in August 2017, sent gravitational waves rippling through space. It was the first event ever to be detected both by gravitational waves and electromagnetic waves, including gamma rays, X-rays, visible light and radio waves. Find out more in this NSF [News From the Field](#).

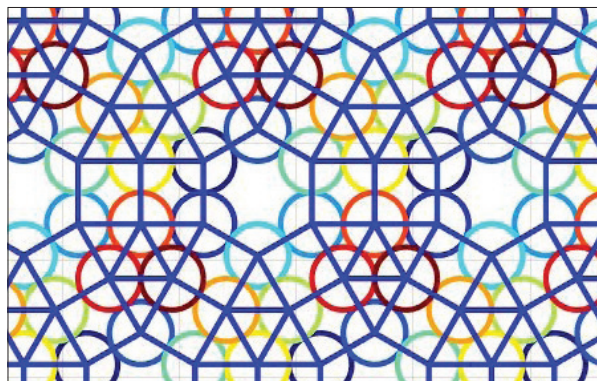


04

New TRIPODS+X awards target Big Data solutions for broad range of research challenges

Building on the success of its 2017 Transdisciplinary Research in Principles of Data Science (TRIPODS) awards, NSF is awarding \$8.5 million in TRIPODS+X grants to expand the scope of the cross-disciplinary TRIPODS institutes into broader areas of science, engineering and mathematics. In total, NSF will support 19 collaborative projects at 23 universities. The supported teams will bring new perspectives to bear on complex and entrenched data science problems. "The multidisciplinary approach for addressing the increasing volume and complexity of data enabled through the TRIPODS+X projects will have a profound impact on the field of data science and its use," said Jim Kurose, NSF assistant director for Computer and Information Science and Engineering. "This impact will be sure to grow as data continues to drive scientific discovery and innovation." Find out more in this NSF [News Release](#).

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05

Drexel's spray-on antennas could be the tech connector of the future

Engineering researchers from Drexel University -- supported in part by NSF -- have developed a method for spraying invisibly thin antennas made from a type of 2D, metallic material called MXene, that perform as well as those being used in mobile devices, wireless routers and portable transducers. The exceptional conductivity of the material enables it to transmit and direct radio waves, even when it's applied in a very thin coating. Preserving transmission quality in a form this thin is significant because it would allow antennas to easily be embedded -- literally, sprayed on -- in a wide variety of objects and surfaces without adding additional weight or circuitry or requiring a certain level of rigidity. Find out more in this NSF [News From the Field](#).

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06

NSF, NIEHS award \$30 million for new research on links among oceans, lakes and human health

Summer 2018. The west coast of Florida. A red tide spreading along this Gulf of Mexico shoreline has killed millions of fish, threatened the health of human residents and affected tourism in the region. Nationwide, such harmful algae blooms cost an estimated \$50 million each year. What led to the Florida "bloom" of harmful algae and what short- and long-term effects might it have on people and other animals -- and on the gulf ecosystem? To study the effects of harmful algae blooms and other ocean and Great Lakes pathogens, NSF and the National Institute of Environmental Health Sciences, one of the National Institutes of Health, have awarded new grants totaling \$30 million. The grants fund research on ecosystems in the oceans and in the Great Lakes Basin. Find out more in this NSF [News Release](#).

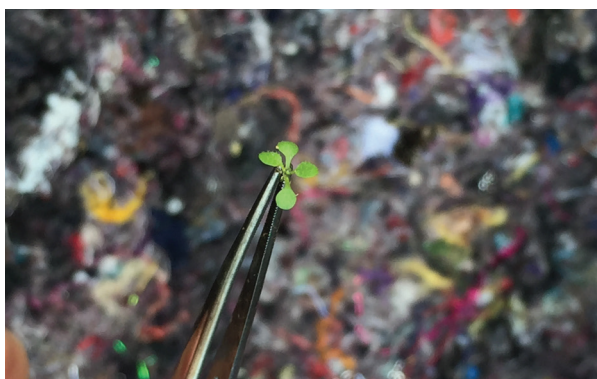
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07

Burst of morning gene activity tells plants when to flower

In a paper published Sept. 24 in the journal Nature Plants, an international team of researchers has discovered that the gene FT -- the primary driver of the transition to flowering in plants each spring -- does something unexpected in Arabidopsis thaliana plants grown in natural environments, with implications for the artificial growing conditions scientists commonly used in the lab. Credit: Akane Kubota. Find out more in this NSF [News From the Field](#).



08

A swab to screen for cancer

Lung cancer is the leading cause of cancer deaths in the U.S., in part because symptoms don't appear until the disease has spread. Evidence suggests that cancer in one part of the body can cause non-cancerous changes in distant organs that, though microscopic, are detectable. With support from NSF, researchers honed a technology -- partial-wave spectroscopic microscopy -- to detect non-cancerous, nanoscale-sized changes that are telltale signs of lung, colon and pancreatic cancers. The researchers founded Preora Diagnostics (now Preora Healthcare) and NanoCytomics to develop their system for use in doctors' offices. In a lung cancer screening study, the companies successfully differentiated hundreds of patients with and without lung cancer by scanning cells gathered from cheek swabs. Find out more in this NSF [Impact](#).

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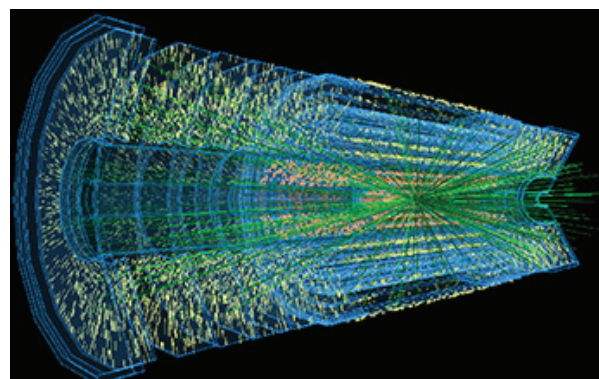


09

New institute to address massive data demands from upgraded Large Hadron Collider

NSF has launched the Institute for Research and Innovation in Software for High-Energy Physics, a \$25 million effort to tackle the unprecedented torrent of data that will come from the High-Luminosity Large Hadron Collider (HL-LHC), the world's most powerful particle accelerator. The upgraded LHC will help scientists fully understand particles such as the Higgs boson -- first observed in 2012 -- and their place in the universe. When the HL-LHC reaches full capability in 2026, it will produce more than 1 billion particle collisions every second, from which only a few will reveal new science. A tenfold increase in luminosity will drive the need for a tenfold increase in data processing and storage, including tools to capture, weed out and record the most relevant events and enable scientists to efficiently analyze the results. Find out more in this NSF [News Release](#).

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10

Researchers develop microbubble scrubber to destroy dangerous biofilms

Stiff microbial films often coat medical devices, household items and infrastructure, such as the inside of water supply pipes, and can lead to dangerous infections. Researchers have developed a system that harnesses the power of bubbles to propel tiny particles through the surfaces of these tough films and deliver an antiseptic deathblow to the microbes living inside. Find out more in this NSF [News From the Field](#).

